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Nos. 82-524, 82-545, 82-551

IN THE

Supreme Court of the United States

OCTOBER TERM, 1982

BALTIMORE GAS AND ELECTRIC COMPANY, *et al.*,
Petitioners,

v.

NATURAL RESOURCES DEFENSE COUNCIL, INC.,
Respondent,

UNITED STATES NUCLEAR REGULATORY COMMISSION AND UNITED STATES OF AMERICA,
Petitioners,

v.

NATURAL RESOURCES DEFENSE COUNCIL, INC., *et al.*,
Respondents,

COMMONWEALTH EDISON COMPANY, *et al.*,
Petitioners,

v.

NATURAL RESOURCES DEFENSE COUNCIL, INC., *et al.*,
Respondents.

On Petitions for a Writ of Certiorari to the United States Court of Appeals for the District of Columbia Circuit

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RESPONDENT'S BRIEF IN OPPOSITION

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QUESTIONS PRESENTED

I. Whether, under the National Environmental Policy Act ("NEPA") and on the basis of the record below, the Nuclear Regulatory Commission ("NRC") could adopt a generic rule quantifying the environmental impacts of nuclear waste disposal but excluding the acknowledged risks that a long-term waste disposal system would not be developed or that it would not operate as expected.

II. Whether, when the generic rule failed to take account of such risks, the NRC could foreclose consideration of the risks in the environmental impact analyses required in individual reactor licensing actions.

III. Whether the NRC, in the original and unamended interim versions of its generic rule quantifying the impacts of the nuclear fuel cycle, could foreclose agency licensing boards from considering, in individual licensing actions, the health, socioeconomic and cumulative impacts of fuel cycle activities on the human environment.

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RESPONDENT'S BRIEF IN OPPOSITION

Respondent Natural Resources Defense Council, Inc. ("NRDC") respectfully requests that this Court deny the petitions for writ of certiorari seeking review of the judgment and opinion of the United States Court of

Appeals for the District of Columbia Circuit in this case.[1] The opinion below is reported at 685 F.2d 459 (D.C. Cir. 1982).

STATEMENT OF THE CASE

Commercial nuclear reactors generate radioactive waste which is both highly toxic and extremely long-lived. In order to prevent a recognized menace to public health, the tons of nuclear waste produced annually by over seventy nuclear plants currently operating in the United States must be totally isolated from the human environment for the hundreds of thousand of years necessary for the radioactive products to decay into harmless elements.[2]

Despite repeated assurances for more than two decades that facilities for permanent storage of high-level nuclear wastes from commercial reactors will be ready when needed, no such facilities now exist anywhere in the world. The United States Department of Energy, which is responsible for building permanent waste disposal facilities in this country, has not yet identified a suitable site for even one such repository or a method for its construction.[3] In the meantime, the spent fuel from com-

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[1] Petitions for a writ of certiorari have been filed by Baltimore Gas and Electric Co., et al. (No. 82-524), by the United States Nuclear Regulatory Commission, et al. (No. 82-545), and by Commonwealth Edison Company, et al. (No. 82-551). Citations to the various petitions will be in the following form: "BG&E Pet. at ——," "NRC Pet. at ——," and "Com Ed Pet. at ——." The appendices to the BG&E and Com Ed petitions are substantially identical and will be cited as "Pet. App. ——."

[2] *See* Interagency Review Group on Nuclear Waste Management, Report to the President 8-9 (U.S. Dep't of Energy Pub. No. TID-29442, 1979) [hereinafter cited as IRG Report].

[3] *See, e.g.*, 44 Fed. Reg. 45,362, 45,374 (1979) (Separate Views of Commissioner Gilinsky on Final Adoption of the S-3 Rule); 128 Cong. Rec. H8161, 8163-66 (daily ed. Sept. 30, 1982); *As the Nuclear Garbage Heap Grows, So Does the Dispute over Storing It*, Nat'l J. (Sept. 11, 1982) at 1540.

mercial nuclear reactors is accumulating in temporary storage pools on the sites of individual reactors.[4]

This case concerns the appropriate treatment of this serious and as-yet unsolved problem in the context of the licensing of nuclear power plants by the Nuclear Regulatory Commission ("Commission" or "NRC").[5] In particular, the question is whether the Commission can, consistent with the National Environmental Policy Act ("NEPA"), 42 U.S.C. §§ 4332 *et seq.* (1976), and the record in this case, promulgate a rule which requires nuclear plant licensing boards to disregard entirely the risk that no long-term solution to the nuclear waste disposal problem will be found, or that a solution will be tried and found wanting. Also at issue is the question whether the Commission can promulgate a rule which purports to quantify the environmental impacts of nuclear fuel cycle activities in the form of a table, but which precludes any consideration by individual licensing boards of health, socioeconomic and cumulative effects of the impacts merely listed in the table.

1. *The Original Table S-3 Rule (1974)*

For more than a decade, the Commission has been struggling to evaluate the environmental consequences of nuclear waste disposal. After Respondent tried unsuc-

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[4] *See, e.g.*, 44 Fed. Reg. 61,372 (1979). Spent nuclear fuel can be reprocessed to separate uranium and plutonium from the high-level waste products and transuranic wastes, thereby subjecting the weapons-usable plutonium to possible diversion or theft. Commercial reprocessing was indefinitely deferred by President Carter in 1977, 13 Weekly Comp. Pres. Doc. 502, 503 (Apr. 7, 1977), because of safety and weapons proliferation concerns associated with plutonium production. This policy was reversed by President Reagan. 17 Weekly Comp. Pres. Doc. 1101 (Oct. 8, 1981).

[5] The Energy Reorganization Act of 1974, 42 U.S.C. §§ 5801 *et seq.* (1976), transferred the licensing and regulatory authority of the Atomic Energy Commission ("AEC") to the newly established Nuclear Regulatory Commission. "Commission," as used herein, will refer to both the AEC and the NRC.

cessfully to raise this issue in the 1971 licensing proceeding for the Vermont Yankee Nuclear Power Station,[6] the Commission published a notice of proposed rulemaking to determine whether, under NEPA, the environmental impact of the nuclear fuel cycle should be taken into consideration in the licensing of nuclear reactors. 37 Fed. Reg. 24,191 (1972).

After rejecting the option of excluding all consideration of fuel cycle effects in licensing proceedings, the Commission instead amended its NEPA regulations to incorporate a highly technical chart, labeled "Table S-3," which the Commission proposed to insert in the environmental impact statement for each nuclear power plant for which a license or construction permit was sought. 37 Fed. Reg. 24,191, 24,192-93 (1972). This Table, which was meant to quantify the expected radiological effluents and other fuel cycle impacts of a standardized 1,000 megawatt light water nuclear reactor, contained no numerical entries for the environmental effects of solidified high-level and transuranic wastes created by nuclear power plants and/or reprocessing facilities. The Commission's amended regulations provided that the consideration of nuclear fuel cycle effects in individual licensing proceedings would be limited to the effluent values "as set forth" in Table S-3. 39 Fed. Reg. 14,188, 14,191 (1974).

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[6] *See In re Vermont Yankee Nuclear Power Corp. (Vermont Yankee Nuclear Power Station)*, 4 A.E.C. 930, 934-36 (1972).

Plant construction permit and licensing decisions are made in the first instance by Atomic Safety and Licensing Boards ("licensing boards"), which are three-member quasi-judicial panels within the Commission, typically consisting of two nuclear physicists and an attorney. 10 C.F.R. § 2.722 (1982). Licensing board decisions are reviewable by the Atomic Safety and Licensing Appeal Board ("Appeal Board"). *Id.* § 2.785. The Commission, in its discretion, can entertain appeals from decisions of the Appeal Board, though it need not do so. *Id.* § 2.786.

On NRDC's petition for review, the court of appeals in *Natural Resources Defense Council, Inc. v. United States Nuclear Regulatory Commission*, 547 F.2d 633 (D.C. Cir. 1976) (*"NRDC v. NRC I"*), held that the rulemaking procedures employed by the Commission in promulgating the Table S-3 rule were inadequate, and that the rule was therefore invalid.

2. *The Interim Table S-3 Rule (1977)*

In response to *NRDC v. NRC I*, the Commission began a new rulemaking proceeding aimed at producing a revised fuel cycle rule. 41 Fed. Reg. 45,849 (1976). Although the Commission conceded that there were "uncertainties" concerning the feasibility of safe, long-term waste storage, 41 Fed. Reg. 45,849, 45,850-51 (1976), the proposed interim rule still provided—partly in reliance upon a staff study of nuclear waste management [7]—that permanent disposal of solidified high-level and transuranic wastes would result in absolutely no effect on the human environment. NRDC filed comments on the interim rule, challenging the assumption that a long-term repository could be designed and operated with no risk of harm to the environment. NRDC also noted that the bare numerical values in Table S-3, without narrative explanation, failed to disclose anything meaningful about the health, socioeconomic and cumulative effects of the fuel cycle activities listed in the table.[8] Nonetheless, in March 1977, the NRC promulgated its interim Table S-3 rule, reaffirming the zero-release assumption for radio-

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[7] U.S. Nuclear Regulatory Comm'n, Environmental Survey of the Reprocessing and Waste Management Portions of the LWR Fuel Cycle (NUREG-0116, 1976) [hereinafter cited as NUREG-0116].

[8] Comments of the NRDC on the NRC's Proposed Amendments to Table S-3, *reprinted in* U.S. Nuclear Regulatory Comm'n, Public Comments and Task Force Responses Regarding the Environmental Survey of the Reprocessing and Waste Management Portions of the LWR Fuel Cycle, at B-96, B-102 (NUREG-0216, 1977).

logical effluents from solidified high-level and transuranic wastes. 10 C.F.R. § 51.20 (1978).[9]

On April 3, 1978, this Court issued its opinion in *Vermont Yankee Nuclear Power Corp v. NRDC*, 435 U.S. 519 (1978), holding that, except in extraordinary circumstances, a reviewing court may not impose procedural requirements on agency rulemaking beyond those established by Congress in section 4 of the Administrative Procedure Act ("APA"), 5 U.S.C. § 553 (1976). 435 U.S. at 542-48. Although *Vermont Yankee* reversed the judgment of the court of appeals in *NRDC v. NRC I*, the Supreme Court remanded the case "so that the Court of Appeals may review the rule as the Administrative Procedure Act provides." *Id.* at 549.

3. *The Final Table S-3 Rule (1979)*

While *Vermont Yankee* was pending before this Court, the NRC continued proceedings aimed at producing a final generic rule on the environmental effects of the nuclear fuel cycle. *See* 42 Fed. Reg. 26,987 (1977). NRDC once again raised its concerns about the failure of the rule to address uncertainties and to discuss the health, socioeconomic and cumulative effects of the Table S-3 values. *See* Closing Statement of the NRDC, *In re Amendment of 10 C.F.R. Part 51, Licensing of Production and Utilization Facilities*, No. RM 50-3 (N.R.C. June 26, 1978).

The Commission promulgated the final Table S-3 rule in July 1979, leaving untouched the zero-release assump-

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[9] As with the original Table S-3 rule, the interim rule stated that the environmental effects of the fuel cycle "shall be as set forth in Table S-3," and that "[n]o further discussion of such environmental effects shall be required." 10 C.F.R. § 51.20(e) (1978). The interim rule was subsequently amended to allow licensing boards to consider environmental impacts not specifically "addressed at all by the Table." 10 C.F.R. § 51.20, Table S-3 n.1 (1979).

tion.[10] *See* 10 C.F.R. §§ 51.20(e), 51.23(c) (1980). Although the NRC acknowledged the persistence of uncertainties concerning the feasibility and performance of a long-term waste repository, 44 Fed. Reg. 45,362, 45,368 (1979), it explicitly rejected the idea of reflecting the risk of these uncertainties in Table S-3 or permitting them to be considered by individual licensing boards:

> In view of the uncertainties noted regarding waste disposal, the question then arises whether these uncertainties can and should be reflected explicitly in the fuel cycle rule. The Commission has concluded that the rule should not be so modified . . . . The Commission concludes, having noted that uncertainties exist, that for the limited purpose of the fuel cycle rule it is reasonable to base impacts on the assumption which the Commission believes the probabilities favor, *i.e.*, that bedded-salt repository sites can be found which will provide effective isolation of radioactive waste from the biosphere.

Id. at 45,369 (footnote omitted).

Two of the Commission's five members expressed reservations about the zero-release assumption embodied in the Table S-3 rule. Commissioner Gilinsky stated that he "would not adopt at least one of the values in the table—the zero expected release from a high level waste repository." 44 Fed. Reg. at 45,374. Noting that "the Commission's expressed confidence in the *perfect* long term operation of such a waste depository may be misplaced," Commissioner Gilinsky observed:

> No such repository has yet operated. The prospective constructors of such a repository have not yet agreed on a design or even chosen a geologic medium. It seems anomalous, at this stage, for the regulators

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[10] For the convenience of the Court, the current version of Table S-3 as it appears in environmental impact statements is reproduced in the appendix to this Brief, with the entry for high-level and transuranic wastes highlighted.

> to express more confidence on this score than the repository designers and builders themselves have expressed.

Id. (emphasis in original). Commissioner Bradford concurred in the zero-release assumption, but commented that "there are uncertainties here, and the Board's summary of the record has not done them justice." *Id.* at 45,372 (footnote omitted).

4. *Proceedings in the Court of Appeals*

Respondent NRDC's petition for review of the final version of the Table S-3 rule was consolidated with its pending petitions regarding the original and interim rules. In *Natural Resources Defense Council, Inc. v. United States Nuclear Regulatory Commission*, 685 F.2d 459 (D.C. Cir. 1982) (*"NRDC v. NRC II"*), the court of appeals held that all three versions of the Table S-3 rule were "arbitrary, capricious, . . . [and] not in accordance with law," 5 U.S.C. § 706 (1976), because they did not allow individual licensing boards to factor the uncertainties of the zero-release assumption into the cost-benefit analysis of individual nuclear plants. 685 F.2d at 484-85. The court also found the original and unamended interim rules to be invalid because they prevented licensing boards from considering the health, socioeconomic and cumulative effects of the fuel cycle. *Id.* at 490. Accordingly, the orders adopting the rules were remanded to the NRC for further action. On June 30, 1982, the panel denied petitions for rehearing submitted by the petitioners herein. *Id.* at 545-46. On the same day, petitioners' suggestions for rehearing *en banc* were rejected without attracting a single vote from the court of appeals. *Id.* at 546.

ARGUMENT

Although petitioners vary in their statement of the questions presented, all assert that the decision below is erroneous and inconsistent with this Court's precedents because the court of appeals is said to have substituted its judgment on a matter of substantive policy for that of the Commission.[11] Unfortunately, petitioners—like the dissenting judge below—have misread the court's opinion. The majority opinion neither stated nor intimated any view on the *outcome* of nuclear plant licensing decisions; it held only that the agency may not structure its decisionmaking process to exclude from consideration environmental factors which Congress—through NEPA—insisted should be considered.

Accordingly, the asserted conflict with decisions of this Court limiting the scope of substantive review under NEPA does not exist.[12] Nor is the issue presented here

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[11] *See, e.g.*, NRC Pet. at 10; Com Ed Pet. at 11; BG&E Pet. at 15.

[12] Moreover, there is no conflict between the holding of *Vermont Yankee*—that a reviewing court ordinarily may not impose on an agency rulemaking procedures not found in the APA—and the holding below—that the NRC may not adopt internal decisionmaking procedures which conflict with NEPA's explicit procedural requirements and which foreclose full disclosure of environmental impacts.

Indeed, the Court in *Vermont Yankee* provided the predicate for the decision below with its explicit recognition of the seriousness of the environmental hazards created by nuclear waste:

> Vermont Yankee will produce annually well over 100 pounds of radioactive wastes, some of which will be highly toxic. . . . Many of these substances must be isolated for anywhere from 600 to hundreds of thousands of years. It is hard to argue that these wastes do not constitute "adverse environmental effects which cannot be avoided should the proposal be implemented," or that by operating nuclear power plants we are not making "irreversible and irretrievable commitments of resources." 42 U.S.C. §§ 4332(2)(C)(ii), (v).

435 U.S. at 538-39.

one of recurring significance. To Respondent's knowledge no other administrative agency separates the function of assessing environmental impacts from the function of approving proposed major actions, and petitioners have cited no precedent for this. Moreover, petitioners have seriously overestimated the impact of the decision below on the administrative process and on nuclear licensees, since possible remedial opportunities are afforded by presently ongoing rulemaking proceedings before the NRC.[13] In addition, strong policy reasons counsel against review of the decision below at this time. The persistence of the uncertainties which concerned the court of appeals is demonstrated by the course of events since the final Table S-3 rulemaking, including not only the further proceedings before the NRC but also the present efforts in Congress to cope with the waste disposal problem through legislation. This Court should hesitate to intervene in a manner which might hamper these current attempts to begin tackling this serious problem.

I. THE DECISION BELOW IS FULLY CONSISTENT WITH THIS COURT'S DECISION IN *VERMONT YANKEE*

The court of appeals began its analysis by observing that its review of the NRC's rules was limited to the standards expressed in the Administrative Procedure Act, namely, whether the rules were "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law." 685 F.2d at 475 (quoting 5 U.S.C. § 706(2)(A) (1976)). This was in full compliance with this Court's mandate to "review the rule as the Administrative Procedure Act provides." 435 U.S. at 549. The court of appeals did not question the adequacy of the agency's rulemaking procedures under the APA, nor did it attempt to assess the desirability of nuclear power. "Congress has left it up to the Commission to determine

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[13] *See* discussion in part III *infra*.

whether, in individual instances, the benefits of nuclear power outweigh the costs," the court explained. "All we consider is whether the Commission has complied with the mandates of the APA and NEPA in performing this task." 685 F.2d at 475 n.75. The court of appeals thus undertook exactly the task laid down by this Court in *Vermont Yankee*:

> Upon remand, the majority of the panel of the Court of Appeals is entirely free to agree or disagree with Judge Tamm's conclusion that the rule pertaining to the back end of the fuel cycle under which petitioner Vermont Yankee's license was considered is arbitrary and capricious within the meaning of § 10(e) of the Administrative Procedure Act, 5 U.S.C. § 706 (1976 ed.) . . . .

435 U.S. at 536 n.14.

In performing its task, the court of appeals began by describing the substance and function of the Table S-3 rule.[14] The rule is comprised almost entirely of a chart containing technical numerical entries and a few terse written comments. *See* 10 C.F.R. § 51.20(e) (1982). Originally, the chart was to be included in the environmental impact statement of each proposed nuclear plant in place of any other discussion of environmental effects of the nuclear fuel cycle; the amended interim and final

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[14] Judge Edwards, concurring below, discussed at length the issue of spent fuel reprocessing, and the attendant dangers of plutonium production. 685 F.2d at 494-516. Petitioners now argue that the Table S-3 rule was not meant to cover the effects of plutonium recycling. *See, e.g.*, Com Ed Pet. at 16 n.20. However, the Table S-3 rule is ambiguous. It is not clear whether the Table S-3 values take into account the possible environmental impacts of storage, transportation and potential use of plutonium. In light of the recent presidential decision to endorse commercial reprocessing, *see* note 4 *supra*, Table S-3 may well be inadequate on these issues. The remand order below will, among other things, enable the NRC to clarify the scope of Table S-3 as it relates to reprocessing and the production, transportation and potential uses of plutonium.

versions of the rule, however, permit additional discussion of the health and other environmental effects of the Table S-3 values. Nevertheless, the rule continues to provide that the numerical values in Table S-3 are conclusive and cannot be questioned by individual licensing boards.[15]

One item in the table has become the focus of this case. Under the heading "Solids," the table contains an entry for high-level and transuranic nuclear wastes—the most concentrated and toxic waste products of a nuclear plant. According to the table, each reactor in each year of operation will produce solidified waste material containing eleven million curies of radioactivity, a quantity that is far more than all the other radioactive wastes listed in the chart and is roughly equivalent to one-tenth of all the radioactivity released from all nuclear weapons tests (over 400) conducted through 1962.[16] Yet this immense quantity of radioactive matter is assigned no environmental effect because the Commission assumes that these wastes will be completely contained for centuries at a federal repository which has not even been designed, much less built. This is the so-called zero-release assumption.

The court of appeals examined this zero-release assumption as both a factual finding and a decisionmaking

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[15] *See, e.g.*, NRC Pet. at 6. The force of Judge Wilkey's dissenting opinion is considerably diminished by his apparent misapprehension regarding this aspect of the rule. Judge Wilkey stated that he interpreted the rule as *permitting*, not *forbidding*, licensing boards to consider risks underlying the zero-release assumption. *See* 685 F.2d at 530 n.84. Given this view, it is not surprising that Judge Wilkey disagreed with the majority analysis. *Compare id. with* 685 F.2d at 478. Clearly, however, the Commission takes the view that its rule *precludes* licensing board consideration of these risks. NRC Pet. at 6-7.

[16] *See generally* Brown & Crouch, *Extreme Scenarios for Nuclear Waste Repositories*, 43 Health Physics 345, 347 (Sept. 1982); Carter & Moghissi, *Three Decades of Nuclear Testing*, 33 Health Physics 55, 58 (July 1977).

device. As a factual finding, the court held, the zero-release assumption is patently unsupportable. Indeed, none of the petitioners has argued that the Commission properly determined, as a matter of fact or informed prediction, that the proposed waste management solutions will work perfectly.[17] The majority examined the record of the Table S-3 proceeding and found it replete with evidence of substantial uncertainty about the availability and feasibility of long-term nuclear waste disposal. 685 F.2d at 478-81.[18] On this basis, the court concluded—without apparent disagreement from Judge Wilkey in dissent[19]—that "read as a finding of no significant risk . . . the zero-release assumption represents a self-evident error in judgment." *Id.* at 481.

The court of appeals then examined the zero-release assumption as a decisionmaking device designed to remove from the licensing process any consideration of the environmental hazards of long-term nuclear waste disposal. The relevant question, the court held, was whether this decisionmaking device is compatible with NEPA's

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[17] The NRC explicitly states that the zero-release assumption is not a factual finding. NRC Pet. at 7-8. Petitioner Com Ed does argue that the Table S-3 rule reflects overall "conservatism," because certain impacts have allegedly been overestimated, thus arguably compensating for the Commission's error in positing zero-release of radiation from buried high-level wastes. Com Ed Pet. at 24. Even assuming the NRC has been "conservative" in some of its estimates, this contention ignores the substantial imbalance between the amounts and toxicity of radiation on which the NRC expressed supposed conservatism and the millions of curies involved in high-level waste disposal.

[18] Indeed, the federal agency with the greatest technical expertise in geological matters—the United States Geological Survey ("USGS")—warned the NRC that "Table S-3 by itself clearly does not convey an appreciation of the risks involved in geologic disposal of high-level radioactive wastes or the uncertainties involved in determining such risks." USGS Response to NRDC's Follow-up Questions of December 16, 1977, No. 1, at 1 (Dec. 23, 1977).

[19] *See, e.g.*, 685 F.2d at 537-38 (Wilkey, J., dissenting).

requirements, which mandate agency consideration and disclosure of the environmental effects of proposed actions. Concluding that the rules violate NEPA, the court of appeals held them to be invalid under the APA, just as *Vermont Yankee* suggested it properly could. *See* 435 U.S. at 549. As the next section demonstrates, this decision is completely consistent with established law in this area.

II. THE DECISION BELOW IS CONSISTENT WITH NEPA PRECEDENTS AND IS SUPPORTED BY THE RECORD BELOW

A. Contrary to Petitioners' Contentions, the Court of Appeals Did Not Depart from Established NEPA Jurisprudence

Section 102(2)(C) of NEPA, 42 U.S.C. § 4332(2)(C) (1976), provides that all federal agencies shall include in every recommendation on a proposal for major federal action, a detailed statement on the environmental impact of the proposed action, including "any adverse environmental effects which cannot be avoided should the proposal be implemented." As this Court has observed, the procedural regimen of section 102 serves two purposes: "The first is to inject environmental considerations into the federal agency's decisionmaking process by requiring the agency to prepare an [environmental impact statement]. The second aim is to inform the public that the agency has considered environmental concerns in its decisionmaking process." *Weinberger v. Catholic Action of Hawaii*, 454 U.S. 139, 143 (1981). Neither of these aims is met where, as here, the agency arbitrarily excludes certain environmental considerations—admitted to exist on the factual record—from playing any part in the critical decision to create long-lived nuclear waste in the first instance.

Section 102(2)(C) of NEPA is, as this Court noted in *Kleppe v. Sierra Club*, 427 U.S. 390 (1976), "one of the

'action-forcing' provisions intended as a directive to 'all agencies to assure consideration of the environmental impact of their actions in decisionmaking.'" *Id.* at 409 (quoting Conference Report on NEPA, 115 Cong. Rec. 40,416 (1969) (remarks of Sen. Jackson)). "By requiring an impact statement Congress intended to assure . . . consideration [of environmental impacts] during the development of a proposal . . . ." *Id.*[20] The Senate debate on NEPA makes clear, moreover, that this requirement extends to every level of the agency decisionmaking process:

> [NEPA] marks an effort for the first time to impress and implant on the Federal agencies an awareness and concern for the total environmental impact of their actions and proposed programs. *This awareness will be built into the agencies' planning processes at the lowest levels, where, as we all know, most decisions are formulated and even finalized.*

115 Cong. Rec. 29,059 (1969) (remarks of Sen. Church) (emphasis added).

The environmental impact statement is thus meant to be the visible sign that an agency has done what Congress commanded it to do, namely, that it has considered environmental impacts in the course of reaching a decision on a proposed action. It is not sufficient that the environmental impact statement is simply "present" at the time a decision is made, if the appropriate decisionmaker is nevertheless foreclosed from considering environmental effects properly found to exist. *See Calvert Cliffs' Coordinating Committee, Inc. v. AEC*, 449 F.2d 1109, 1117-18 (D.C. Cir. 1971).[21] In order to pass muster under NEPA,

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[20] As other courts have noted, NEPA "compel[s] federal agencies to give serious weight to environmental factors in making discretionary choices." *Monroe County Conservation Council, Inc. v. Volpe*, 472 F.2d 693, 697 (2d Cir. 1972); *Sierra Club v. Morton*, 510 F.2d 813, 819 (5th Cir. 1975).

[21] As this Court observed in *Vermont Yankee*, the "members of the decisionmaking unit of the agency" must make "a fully informed

the agency decisionmaking process must, at the least, give the impact statement some opportunity to have an impact. This "helps insure the integrity of the [decisionmaking process] by precluding stubborn problems or serious criticism from being swept under the rug." *Silva v. Lynn*, 482 F.2d 1282, 1285 (1st Cir. 1973); *see also Sierra Club v. Morton*, 510 F.2d 813, 820 (5th Cir. 1975).

The second major function of section 102(2)(C) is to inform the public that environmental consequences have been considered by the agency before a proposed action is undertaken. *See Weinberger v. Catholic Action of Hawaii*, 454 U.S. 139, 143 (1981). In this way, the public is assured that the decisionmaker has considered possible environmental costs, and the political process is permitted to operate on unpopular choices. *See Catholic Action of Hawaii v. Brown*, 643 F.2d 569, 571-72 (9th Cir. 1980), *rev'd on other grounds*, 454 U.S. 139 (1981).[22] The Commission's Table S-3 rule does not reveal the significant uncertainties surrounding its numerical environmental values; moreover, the Commission has instructed the licensing boards to ignore any risks attendant on these uncertainties. Thus, the public is kept largely in the dark about the potential environmental consequences associated with high-level nuclear waste, while decisions

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and well-considered decision." 435 U.S. at 558. Petitioner Com Ed argues that the NRC has not withheld from the appropriate decisionmaker the authority to consider the risks of nuclear waste disposal because "the Commission . . . decides whether to issue a nuclear power reactor license" and "there is no question whether the Commission has considered the uncertainties." Com Ed Pet. at 15 n.19. This argument ignores the fact that the Commission has delegated its licensing power to the various licensing boards, with automatic review only at the Appeal Board level. *See* note 6 *supra*.

[22] *See also Union of Concerned Scientists v. AEC*, 499 F.2d 1069, 1083 n.34 (D.C. Cir. 1974) (NEPA requires solicitation and disclosure of "sometimes embarrassing comments . . . . In this way, 'the officials making the ultimate decision . . .' are aided in making a responsible choice.").

are made without regard to these risks. The court below refused to permit this result.

Therefore, the court of appeals' decision, far from being a sharp break with precedent, is fully supported by the past decisions of this Court and other courts of appeals. Indeed, it is petitioners, not the court below, who are advocating a novel and radical interpretation of NEPA. Petitioners contend that an administrative agency can determine, on a generic basis, that certain environmental risks—even though they are admitted to exist—should not be considered by the agency decisionmaker when proposed actions are being evaluated. Petitioners appear to be arguing that potentially substantial environmental threats are not proper factors to be considered in the environmental analysis mandated by NEPA, if the agency believes their probability is low. *See* NRC Pet. at 16-17; BG&E Pet. at 16-17; Com Ed Pet. at 13-14. But established precedent indicates that uncertainty about the costs associated with a proposed action is no reason to exclude such costs from consideration in the actual decisionmaking process.[23] Moreover, the regulations issued by the Council on Environmental Quality ("CEQ") under NEPA

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[23] Where a significant risk of environmental effects exists, the agency may not simply sweep it under the rug and pretend it will not occur. *Silva v. Lynn*, 482 F.2d 1282, 1285 (1st Cir. 1973). "One of the costs that must be weighed by decisionmakers is the cost of uncertainty—*i.e.*, the costs of proceeding without more and better information." *Alaska v. Andrus*, 580 F.2d 465, 473 (D.C. Cir.), *vacated on other grounds sub nom. Western Oil & Gas Ass'n v. Alaska*, 439 U.S. 922 (1978); *see also Citizens Against Toxic Sprays, Inc. v. Bergland*, 428 F. Supp. 908, 922 (D. Or. 1977); *North Slope Borough v. Andrus*, 486 F. Supp. 332, 346-47 (D.D.C.), *rev'd in part on other grounds*, 642 F.2d 589, 605 (D.C. Cir. 1980); *cf. Sierra Club v. Stamm*, 507 F.2d 788, 794 (10th Cir. 1974) (NEPA requires that "presently unquantified environmental amenities and values . . . be given appropriate consideration in decisionmaking," 42 U.S.C. § 4332(B)); *Cummington Preservation Comm. v. FAA*, 524 F.2d 241, 244 (1st Cir. 1975) ("[A]n EIS must not only point to potential environmental problems but must also evaluate them . . . .").

emphasize an agency's duty to consider the risk and severity of possible adverse impacts:

> If . . . the information relevant to adverse impacts is important to the decision and the means to obtain it are not known (e.g., the means for obtaining it are beyond the state of the art) the agency shall weigh the need for the action against the risk and severity of possible adverse impacts were the action to proceed in the face of uncertainty. If the agency proceeds, it shall include a worst case analysis and an indication of the probability or improbability of its occurrence.

40 C.F.R. § 1502.22 (1981).[24] As this Court has observed, "CEQ's interpretation of NEPA is entitled to substantial deference, [because the] Council was created by NEPA, and charged in that statute with the responsibility 'to review and appraise the various programs and activities of the Federal Government in the light of the policy set forth in . . . this Act . . . .'" *Andrus v. Sierra Club*, 442 U.S. 347, 358 (1979) (quoting 42 U.S.C. § 4344(3) (1976)).[25] Accordingly, the Commission's argument that the environ-

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[24] The Commission's actions in a related area are consistent with this regulation and belie its contentions before this Court. *See* Nuclear Regulatory Comm'n, Statement of Interim Policy on Nuclear Power Plant Accident Considerations Under the National Environmental Policy Act of 1969, 45 Fed. Reg. 40,101 (1980) (even though probability of Class 9 accident is minimal, environmental reports should contain an assessment of the environmental risks associated with a Class 9 accident based on the consequences and likelihood of such an accident).

[25] At least one of the petitioners argues that the CEQ regulations are irrelevant to this case because the NRC, being an independent regulatory agency, is not subject to the CEQ's authority. Com Ed Pet. at 24-25. Whatever the merits of this argument, it misses the essential point. CEQ's formal interpretation of NEPA is entitled to substantial deference as an indication of what Congress intended when it passed the law. On this basis, the regulations clearly support the position taken by the court of appeals in this case.

mental costs of long-term waste disposal can be ignored because they are uncertain was properly rejected below.

B. The Extensive Record in this Case Demonstrates That the Commission's Position on the Risk of Environmental Impacts Is Untenable

When the Table S-3 rule was last before this Court in *Vermont Yankee*, the rulemaking record supporting the zero-release assumption was so meager that the Court could not conclude that the rule was properly supported. 435 U.S. at 549. Since that time, the Commission has compiled thousands of pages of reports, studies, surveys, comments and transcripts. Technical experts both within and without the government have been consulted. Yet after all this rulemaking activity, substantial uncertainty still remains concerning the critical question whether long-term nuclear waste disposal can be accomplished without harm to the environment.

This Brief can do no more than highlight the existing concerns. Two of the key agencies which participated in the NRC's final rulemaking—the Environmental Protection Agency ("EPA") and the USGS—both expressed substantial reservations about the finding of no significant risk of radioactive releases from a permanent waste disposal facility. *See, e.g.*, EPA Response to NRDC's Proposed Questions of November 18, 1977, No. 2(d), at 1 (undated) ("purely numerical table is, in fact, an implication of a greater certainty than is warranted by the facts"); Report of Ad Hoc Panel of Earth Scientists: The State of Geological Knowledge Regarding Potential Transport of High-Level Radioactive Waste from Deep Continental Repositories, EPA/520/4-78-044, at 32 (June 1978) ("extreme numerical uncertainties" attached to most factors bearing on the possibility of repository failure); U.S. Geological Survey, Geologic Disposal of High-Level Radioactive Wastes—Earth-Science Perspectives, USGS Circular 779, at 6 (1978) ("[G]iven the current

state of our knowledge, the uncertainties associated with hot wastes that interact chemically and mechanically with the rock and fluid system appear very high.").

Moreover, both of the reports relied upon by the Commission in promulgating the Table S-3 rule cautioned that predictions about the performance or feasibility of a waste-storage facility are subject to substantial uncertainty. The Interagency Review Group report, for example, pointed out that risk assessments "based on idealized repository characteristics . . . are subject to significant uncertainties," and concluded that the "zero release of radionuclides cannot be assured." IRG Report, *supra* note 2, at 17. Moreover, the Commission's own staff conceded:

> [T]here are still uncertainties in areas such as the effect of waste presence on repository stability; the probabilities and consequences of intrusive acts by humans; the validity of data used in modeling studies; the design and regulatory actions needed to minimize possibilities of repository failure; projection of future societal habits and demography, and finally, the relative importance of various potential initiating events.

NUREG-0116, *supra* note 7, at 4-94.

Events subsequent to the promulgation of the final rule in 1979 serve only to highlight the persistence of uncertainty regarding the technical feasibility and safety of long-term waste repositories, as well as the institutional question whether appropriate sites can be selected and maintained. In the currently ongoing Waste Confidence proceeding,[26] the NRC has developed substantial evidence—

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[26] 44 Fed. Reg. 61,372 (1979). This proceeding was initiated to comply with the decision in *Minnesota v. NRC*, 602 F.2d 412 (D.C. Cir. 1979), which required the NRC, before approving further expansion of reactor-site spent fuel storage, to determine whether it has reasonable confidence that a permanent off-site repository for nuclear waste will be available in the near future.

summarized in the Report of the NRC Working Group[27] —that uncertainty over the risks of waste disposal continues. There are significant questions about the ability of the Department of Energy ("DOE") to find a suitable repository site and to design and build an adequate facility. As DOE has candidly admitted:

> [A]dditional engineering development work remains to be done before safe waste disposal can actually be achieved. . . . Until the [waste research and development] program is completed, there necessarily remains a degree of uncertainty regarding whether DOE will find the answer to questions still open and whether those answers, when found, will turn out as hoped for.

NRC Report, *supra* note 27, Introductory Statement at 7.

In addition, other agencies continue to note significant uncertainties about the risk assessment models used by DOE. USGS, for example, has stated that any generic assessment that radioactive waste can be contained in a federal waste repository at acceptable levels of risk deserves only "limited credibility." *Id.*, Part 1.B at 17. USGS has also commented that any current determination of when a repository will be available is necessarily "imprecise and premature." *Id.* at 18. DOE, itself, recognizes that "important gaps exist in knowledge regarding rock properties and responses under extreme conditions of temperature, stress, and radiation over long periods of time." *Id.* at 63.

On a second front, Congress is now considering legislation that would establish a federal policy with respect to the disposal of high-level nuclear waste and that would provide for the construction, operation and maintenance of federal waste disposal facilities.[28] From the legislative

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[27] U.S. Nuclear Regulatory Comm'n, Report of the Working Group on the Proposed Rulemaking on the Storage and Disposal of Nuclear Wastes (Jan. 29, 1981) [hereinafter cited as NRC Report].

[28] In April of 1982, the Senate passed its version of a nuclear waste bill. S. 1662, 97th Cong., 2d Sess., 128 Cong. Rec. S4325

record, it is apparent that Congress is wrestling with some of the same problems and uncertainties that the NRC's Table S-3 rule is meant to reflect. The House Energy Committee, for example, has acknowledged that past federal efforts to establish demonstration repositories for high-level wastes have been plagued with "serious problems." [29] Furthermore, the House Interior Committee has stated that, while waste disposal risks may be small in principle, the "management of nuclear wastes has been inadequate to guarantee that the risks will be small in fact." [30] The Committee has also recognized that "[t]he potential for failure or serious delay in the [repository development] program exists." [31] Finally, testimony before Congress by officials of the USGS and EPA demonstrates that the feasibility of environmentally safe nuclear waste disposal remains an open question.[32]

(daily ed. Apr. 29, 1982). On September 30, 1982, the House began debating its version of the nuclear waste disposal legislation, H.R. 7187, 97th Cong., 2d Sess., *see* 128 Cong. Rec. H8161 (daily ed. Sept. 30, 1982), but could not complete its deliberations before the October campaign recess. The 142-page House bill contains a detailed schedule for the development of a federal waste repository and extensive provisions pertaining to environmental review.

[29] H.R. Rep. No. 785, 97th Cong., 2d Sess. 48 (1982). Significantly, this report found that the number of geologic sites suitable for waste disposal is limited, *id.*, while the NRC expressly relied on "the widespread distribution of salt deposits" in the United States when it concluded in its final S-3 rulemaking that a suitable bedded-salt repository would be found. 44 Fed. Reg. 45,362, 45,368 (1979).

[30] H.R. Rep. No. 491, 97th Cong., 2d Sess. 29 (1982).

[31] *Id.* at 44.

[32] For example, on October 6, 1981, James F. Devine, Assistant Director—Engineering Geology, U.S. Geological Survey, described the site characterization phases of the proposed nuclear waste disposal program as a "learn-as-we-go procedure" and indicated that DOE might need to "guess" which localities offer the best chance of success. Joint Rep. No. 282, 97th Cong., 1st Sess. 54 (1981).

In the face of these substantial indications of continuing uncertainty regarding the risks involved in permanent disposal of high-level nuclear waste, petitioners contend that the NRC was entitled to make a "policy" decision to instruct licensing boards to issue nuclear reactor licenses without regard to the environmental hazards associated with the production of such wastes. In other words, the Commission argues it is free to conclude "that whatever uncertainty attend[s] the disposal problem should *not* be a reason for withholding a license in any individual case." NRC Pet. at 14 (emphasis in original).

The defect in this argument is that it ignores the variety of facts and circumstances which may arise in individual licensing cases. It is, of course, perfectly permissible for the agency to determine, in a particular case, that the potential risks of waste disposal, together with the other costs and risks of the proposed plant, are outweighed by the benefits of going forward with the plant. But it would be inherently arbitrary and capricious for the Commission to decide, *a priori*, that the admitted environmental hazards of waste disposal can *never* affect the licensing boards' decisions in specific cases. Such a policy would be contrary to the agency's duty under NEPA to insure that environmental factors are considered "to the fullest extent possible," 42 U.S.C. § 4332 (1976).[33] Observing that the Commission "did not

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[33] *See, e.g., Environmental Defense Fund v. Mathews*, 410 F. Supp. 336, 337-38 (D.D.C. 1976) ("[L]imitation of the agency's discretion to act in accordance with environmental considerations directly contravenes the mandate of NEPA . . . ."). Throughout this lengthy proceeding, the NRC has never stated explicitly that the potential environmental costs of long-term nuclear waste disposal can be presumed not to affect the cost-benefit analysis of particular plants. On the contrary, the Commission has recognized that licensing boards would be placed in an "untenable posture" if they refused "to consider known relevant environmental factors which could possibly affect the cost-benefit balance." *In re Philadelphia Elec. Co.* (*Peach Bottom Atomic Power Station*), 8 A.E.C. 217, 220 (1974); *see also In re Vermont Yankee Nuclear Power Corp.* (*Ver-*

rule that the costs were insignificant, nor did it rule that they were outweighed by generic benefits that would also be excluded from licensing boards' consideration," 685 F.2d at 483 (footnote omitted), the court of appeals concluded, "The process that began with the proposal of the Table S-3 Rule does not allow the uncertainties concerning permanent storage to play a role in the ultimate licensing decision." *Id.* at 484. While the court emphasized that the Commission *may* choose to proceed in the face of uncertainty, it held that "*where* the Commission has not factored the uncertainties surrounding its assumptions into a generic rule like the Table S-3 Rule, it cannot *also* preclude individual licensing boards from considering those uncertainties when applying the values provided by the Rule." *Id.* at 485 n.134 (emphasis in original).

C. The Commission Has Conceded That Its Original and Interim Rules Effectively Precluded Consideration of the Health, Socioeconomic and Cumulative Effects of Fuel Cycle Activities

The court of appeals also invalidated the original and unamended interim versions of the Table S-3 rule because they prevented consideration in individual licensing proceedings of the health, socioeconomic and cumulative effects of nuclear fuel cycle activities, such as potential cancer deaths and diversion of fissionable materials by terrorists. *Id.* at 490. As the court noted, there is no serious dispute that NEPA requires disclosure in the environmental impact statement of effects such as these. *See, e.g., Kleppe v. Sierra Club*, 427 U.S. 390, 410

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mont Yankee Nuclear Power Station), 6 N.R.C. 25, 30-32 (1977) (Farrar, J., concurring). Moreover, the Commission's Appeal Board has strongly hinted that some cost-benefit analyses might be affected by a Table S-3 rule which took proper account of the uncertainties underlying the zero-release hypothesis. *See In re Vermont Yankee Nuclear Power Corp. (Vermont Yankee Nuclear Power Station)*, 5 N.R.C. 759, 765 & n.7 (1977).

(1976); *NRDC v. Callaway*, 524 F.2d 79, 88 (2d Cir. 1975); *Trinity Episcopal School Corp. v. Romney*, 523 F.2d 88, 93 (2d Cir. 1975); *Prince George's County, Maryland v. Holloway*, 404 F. Supp. 1181, 1186 (D.D.C. 1975); *see also* S. Rep. No. 296, 91st Cong., 1st Sess. 5 (1969). Simply listing environmental effects in terms of "curies" or "man-rems" per "reference reactor year," as the NRC did in the original and interim Table S-3 rules, does nothing to inform the public of the cumulative environmental and health hazards involved in fuel cycle activities, and may seriously obscure the basis for decision-making within the agency. The clearest indication of the inadequacy of the NRC's original approach, however, is the Commission's own decision in April of 1978 to amend the interim rule to make clear that tangible fuel cycle effects *can* be considered in individual licensing proceedings. 10 C.F.R. § 51.20(e) (1979).

Petitioners' primary response to this issue has been to argue that the court of appeals misinterpreted the original and interim rules. The Commission, petitioners assert, never intended to curtail consideration of the effects of fuel cycle activities.

Petitioners' revisionist history simply will not wash. Both the original and the interim versions of the Table S-3 rule provided that "the contribution of the environmental effects of . . . fuel cycle activities . . . shall be *as set forth* in . . . Table S-3 . . . . No further discussion of such environmental effects shall be required." 39 Fed. Reg. 14,188, 14,191 (1974); 10 C.F.R. § 51.20(e) (1978) (emphasis added). The Commission has conceded that these rules were interpreted "at least initially . . . as cutting off further discussion of fuel cycle impacts." 44 Fed. Reg. 45,362, 45,364 (1979). In fact, the absence of any published decisions, prior to the amendment of the interim rule, in which a private party attempted to introduce evidence on the tangible effects of the fuel cycle

demonstrates that this interpretation was widely shared [34] and that it effectively prevented any consideration being given to these matters. As the Commission has acknowledged:

> [T]he rule in practice [was applied] as allowing fuel cycle impacts to be addressed in reactor licensing proceedings solely by the formal act of displaying Table S-3 in impact statements, with no further discussion. In particular, impact statements prepared by the staff did not analyze fuel cycle impacts in terms of health effects which might be caused by the radioactive releases tabulated in the rule and did not discuss socioeconomic or cumulative impacts.

44 Fed. Reg. at 45,364. Thus, on this issue, the Commission stands condemned by its own words.[35]

III. PETITIONERS HAVE EXAGGERATED THE POTENTIAL IMPACT OF THE RESULT REACHED BELOW

All three petitioners argue that the decision below will cause dozens of nuclear plant licenses to be cast into doubt or held in interminable delay while the NRC deter-

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[34] *See* Note, *The Use of Generic Rulemaking to Resolve Environmental Issues in Nuclear Power Plant Licensing*, 61 U. Va. L. Rev. 869, 884 (1975) (original Table S-3 rule "foreclos[ed] staff review of these [environmental] effects in individual applications as well as discussion of these issues in licensing hearings").

[35] Petitioners argue that the Appeal Board decision in *In re TVA (Hartsville Nuclear Plant)*, 5 N.R.C. 92 (1977), shows that evidence regarding health and other effects of the uranium fuel cycle was accepted in licensing hearings prior to the 1978 amendment of the interim rule. *See, e.g.*, NRC Pet. at 20. But *Hartsville* concerned the narrow situation in which a proposed nuclear plant was being balanced against an alternative coal-fired plant. The Appeal Board in *Hartsville* made it quite plain that "an explicit statement of the risk of diseases *and* genetic effects from a nuclear plant need not be made in the ordinary cost-benefit analysis," 5 N.R.C. at 103 n.52, and that the Table S-3 rules "limit[ed] consideration of the environmental effects of the uranium fuel cycle in individual licensing proceedings *to the values set out* in Table S-3," *id.* at 105 (emphasis added).

mines how it will conform to the court of appeals' mandate. This fear, though understandable on the part of industry intervenors with large sums invested in nuclear reactors, is nonetheless greatly exaggerated.

The NRC itself will determine, at least in the first instance, how to begin reforming its decisionmaking rules and processes to accommodate the decision in this case. The agency may adjust its Table S-3 rule to take proper account of the risks associated with waste disposal and the zero-release assumption, *see, e.g.*, note 24 *supra*, or it may leave assessment of those risks to the individual licensing boards. 685 F.2d at 486. In the event the agency chooses the former course, it has a proceeding already underway—the Waste Confidence proceeding—which may provide an opportunity for an appropriate adjustment to be made in a timely fashion. *See* note 26 *supra*.

Furthermore, the agency has proposed and now has under consideration a Narrative Explanation of the Table S-3 rule.[36] This narrative could be expanded to take account of the uncertainties of the zero-release assumption in such a way that those uncertainties would be placed before licensing boards for their consideration, whether or not explicitly quantified in Table S-3. In these ways, or possibly others,[37] the NRC should be able to adapt to the decision below with minimal disruption or delay.

To the extent that the effect of this decision on previously granted licenses is a concern, it is appropriate to

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[36] 46 Fed. Reg. 15,154 (1981).

[37] For example, the NRC has taken action to mitigate delay in individual licensing proceedings associated with the consideration of revised Table S-3 radon values, *In re Philadelphia Elec. Co. (Peach Bottom Atomic Power Station)*, 7 N.R.C. 796 (1978), by permitting a streamlined procedure whereby record evidence developed in the first proceeding to consider the revised radon values will form the basis for expedited review in all other proceedings.

note that this issue has not yet been resolved below. Unlike *Vermont Yankee*, the present case does not involve review of any particular licensing decision, but solely involves review of the Table S-3 rule on its face. *See* Order of March 12, 1980, Pet. App. 212a. Several license orders granted on the basis of Table S-3 are presently on appeal in the courts of appeals,[38] but as yet no decision has been reached on the disposition of those cases in light of the decision below, and the issue is therefore not presently before this Court.

One impact which petitioners do not mention, but which should be of significant concern, is the impact that a grant of review in this Court may have on presently ongoing efforts to deal with the nuclear waste issue. Congress has been trying for more than two years to pass a nuclear waste disposal bill which is intended to set the United States on the road toward a program for managing nuclear waste. *See* note 28 *supra*. The Commission itself is in the midst of its Waste Confidence proceeding which is meant to answer the question whether the Commission is reasonably assured that safe, reliable waste management technology will be available in the foreseeable future. As often happens in cases such as the present one, intervention by the Court at this stage may well cause the other institutions of government to be diverted from these activities while they "wait and see" what this Court will do. Where, as in this case, the court below has reached a decision which is consistent with the intent of Congress and the past decisions of this Court, which is supported by the factual record, and which may readily be accommodated by the administrative process, this Court should be hesitant to allow yet

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[38] *E.g., Lloyd Harbor Study Group v. NRC*, No. 73-2266 (D.C. Cir.); *Nelson Aeschliman v. NRC*, Nos. 73-1776, 73-1867 (D.C. Cir.); *NRDC v. NRC*, No. 74-1385 (D.C. Cir.); *Coalition for the Environment v. NRC*, No. 77-1905 (D.C. Cir.); *New England Coalition on Nuclear Pollution v. NRC*, No. 76-1525 (1st Cir.).

another round of judicial review, which may only sidetrack the efforts of Congress and the regulatory agencies in this important area.

CONCLUSION

For these reasons, the petitions for a writ of certiorari should be denied.[39]

Respectfully submitted,

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[39] The State of New York, which was a party below, concurs that certiorari should be denied.

TABLE S-3—TABLE OF URANIUM FUEL CYCLE ENVIRONMENTAL DATA [1]

(Normalized to model LWR annual fuel requirement (WASH-1248) or reference reactor year (NUREG-0116))

Environmental considerations	Total	Maximum effect per annual fuel requirement or reference reactor year of model 1,000 MWe LWR
NATURAL RESOURCES USE		
Land (acres):		
Temporarily committed [2]	100	
Undisturbed area	79	
Disturbed area	22	Equivalent to a 110 MWe coal-fired power plant.
Permanently committed	13	
Overburden moved (millions of MT)	2.6	Equivalent to 95 MWe coal-fired power plant.
Water (millions of gallons):		
Discharged to air	160	2 percent of model 1,000 MWe LWR with cooling tower.
Discharged to water bodies	11,090	
Discharged to ground	127	
Total	11,377	<4 percent of model 1,000 MWe LWR with once-through cooling.
Fossil fuel:		
Electrical energy (thousands of MW-hour)	323	<5 percent of model 1,000 MWe LWR output.
Fossil fuel—Continued:		
Equivalent coal (thousands of MT)	118	Equivalent to the consumption of a 45 MWe coal-fired power plant.
Natural gas (millions of scf)	135	<0.4 percent of model 1,000 MWe energy output.
EFFLUENTS—CHEMICAL (MT)		
Gases (including entrainment) [3]:		
SO_x	4,400	
NO_x [4]	1,190	Equivalent to emissions from 45 MWe coal-fired plant for a year.
Hydrocarbons	14	
CO	29.6	
Particulates	1,154	
Other gases:		
F	67	Principally from UF$_6$ production, enrichment, and reprocessing. Concentration within range of state standards—below level that has effects on human health.
HCl	014	
Liquids:		
$SO_4^{=}$	9.9	From enrichment, fuel fabrication, and reprocessing steps. Components that constitute a potential for adverse environmental effect are present in dilute concentrations and receive additional dilution by receiving bodies of water to levels below permissible standards. The constituents that require dilution and the flow of dilution water are:
NO_3^{-}	25.8	NH_4—600 cfs
Fluoride	12.9	NO_3—20 cfs
Ca	5.4	Fluoride—70 cfs
Cl	8.5	
Na	12.1	
NH_4	10.0	
Fe	4	
Tailings solutions (thousands of MT)	240	From mills only—no significant effluents to environment.
Solids	91,000	Principally from mills—no significant effluents to environment.
EFFLUENTS—RADIOLOGICAL (CURIES)		
Gases (including entrainment):		
Rn-222		Presently under reconsideration by the Commission.
Ra-226	02	
Th-230	02	
Uranium	034	
Tritium (thousands)	18.1	
C-14	24	
Kr-85 (Thousands)	400	
Ru-106	14	Principally from fuel reprocessing plants.
I-129	1.3	
I-131	83	
Tc-99		Presently under consideration by the Commission.
Fission products and transuranics	203	
Liquids:		
Uranium and daughters	2.1	Principally from milling—included tailings liquor and returned to ground—no effluents; therefore, no effect on environment.
Ra-226	0034	From UF$_6$ production.
Th-230	0015	
Th-234	01	From fuel fabrication plants—concentration 10 percent of 10 CFR 20 for total processing 26 annual fuel requirements for model LWR.
Fission and activation products	6.9 E-6 [5]	
Solids (buried on site):		
Other than high level (shallow)	11,300	9,100 Ci comes from low level reactor wastes and 1,500 Ci comes from reactor decontamination and decommissioning—buried at land burial facilities. 600 Ci comes from mills—included in tailings returned to ground. Approximately 60 Ci comes from conversion and spent fuel storage. No significant effect to the environment.
TRU and HLW (deep)	3.1 E-7 [6]	Deep geologic disposal of Federal responsibility.
Effluents—thermal (billions of British thermal units)	4,063	<5 percent of model 1,000 MWe LWR.
Transportation (person-rem):		
Exposure of workers and general public	2.5	
Occupational exposure (person-rem)	22.6	From reprocessing and waste management.

[1] In some cases where no entry appears it is clear from the background documents that the matter was addressed and that, in effect, the Table should be read as if a specific zero entry had been made. However, there are other areas that are not addressed at all in the Table. Table S-3 does not include health effects from the effluents described in the Table, or estimates of releases of Radon-222 from the uranium fuel cycle or estimates of Technetium-99 released from waste management or reprocessing activities. These issues may be the subject of litigation in the individual licensing proceedings.

Data supporting this table are given in the "Environmental Survey of the Uranium Fuel Cycle," WASH-1248, April 1974, the "Environmental Survey of the Reprocessing and Waste Management Portion of the LWR Fuel Cycle," NUREG-0116 (Supp. 1 to WASH-1248), the "Public Comments and Task Force Responses Regarding the Environmental Survey of the Reprocessing and Waste Management Portions of the LWR Fuel Cycle," NUREG-0216 (Supp. 2 to WASH-1248), and in the record of the final rulemaking pertaining to Uranium Fuel Cycle Impacts from Spent Fuel Reprocessing and Radioactive Waste Management, Docket RM-50-3. The contributions from reprocessing, waste management and transportation of wastes are maximized for either of the two fuel cycles (uranium only and no recycle). The contribution from transportation includes transportation of cold fuel to a reactor and of irradiated fuel and radioactive wastes from a reactor which are considered in Table S-4 of § 51.20(g). The contributions from the other steps of the fuel cycle are given in columns A-E of Table S-3A of WASH-1248.

[2] The contributions to temporarily committed land from reprocessing are not prorated over 30 years, since the complete temporary impact accrues regardless of whether the plant services one reactor for one year or 57 reactors for 30 years.

[3] Estimated effluents based upon combustion of equivalent coal for power generation.

[4] 1.2 percent from natural gas use and process.